

IN THE CLAIMS:

Please amend claims 28, 33, 34, 51, 54, and 55 as follows. In accordance with current U.S. Patent and Trademark Office procedure, all claims in the application are reproduced below.

1-27. (Canceled)

28. (Currently Amended) An optical system for forming an image of a pattern of a reticle upon an object to be exposed ~~a first object on a second object~~, said optical system comprising:

an optical lens element, which is deformed by the weight thereof; and

at least one optical member for reducing ~~preventing~~ a change in optical performance of said optical system due to deformation of said optical lens element, when said optical lens element is provided in said optical system,

wherein said optical lens element and said at least one optical member are disposed between the reticle and the object to be exposed ~~first object and the second object~~.

29-32. (Canceled)

33. (Currently Amended) A projection exposure apparatus comprising:
an illumination optical system for illuminating a pattern formed on a reticle ~~first object~~; and

a projection optical system for projecting the pattern of the ~~first object~~ reticle onto an object to be exposed ~~second object~~, said projection optical system including (i) an optical lens element being deformed by the weight thereof, and (ii) at least one optical member for preventing a change in optical performance of said projection optical system due to deformation of said optical lens element, when said optical lens element is provided in said projection optical system,

wherein said projection optical system is disposed between the reticle ~~first object~~ and an object to be exposed ~~the second object~~.

34. (Currently Amended) A device manufacturing method comprising:
including

a process for transferring, through projection exposure, a pattern of a reticle ~~first object~~ onto an object to be exposed ~~second object~~ by use of a projection exposure apparatus as recited in claim 33.

35-37. (Canceled)

38. (Previously Presented) An optical system according to claim 28,
wherein said optical lens element is a diffractive optical lens element.

39. (Previously Presented) An optical system according to claim 28,
wherein said at least one optical member has at least one aspherical surface.

40. (Previously Presented) An apparatus according to claim 33, wherein said optical lens element is a diffractive optical lens element.

41. (Previously Presented) An apparatus according to claim 33, wherein said at least one optical member has at least one aspherical surface.

42. (Canceled)

43. (Previously Presented) An optical system according to claim 28, wherein the refractive power of said optical lens element is a positive refractive power.

44. (Previously Presented) An optical system according to claim 28, wherein the refractive power of said optical lens element is a negative refractive power.

45. (Canceled)

46. (Previously Presented) An optical system according to claim 39, further comprising a second optical lens element juxtaposed to said optical lens element, wherein said at least one aspherical surface is provided on said second optical lens element.

47. (Canceled)

48. (Previously Presented) An optical system according to claim 28, wherein said optical lens element has a step-like shape.

49. (Canceled)

50. (Canceled)

51. (Currently Amended) An optical system for forming an image of a reticle first object on an object to be exposed ~~a second object~~, said optical system comprising:

an optical lens element being able to be deformed by the weight thereof; and
at least one optical member having an aspherical surface effective to prevent a change in optical performance of said optical system due to deformation of said optical lens element as said optical lens element is provided in said optical system, said at least one optical member being disposed adjacent to said optical lens element,

wherein said optical lens element and said at least one optical member are disposed between the reticle first object and the object to be exposed ~~the second object~~.

52. (Previously Presented) An optical system according to claim 51, wherein said optical lens element is a diffractive optical element.

53. (Previously Presented) An optical system according to claim 51, wherein said optical lens element has a step-like shape.

54. (Currently Amended) A projection exposure apparatus, comprising:
an illumination optical system for illuminating a pattern formed on a reticle
~~first object~~; and
a projection optical system for projecting light from the pattern, said
projection optical system including an optical system as recited in claim 51.

55. (Currently Amended) A device manufacturing method comprising:
including
a process for transferring, through projection exposure, a pattern of a reticle
~~first object~~ onto an object to be exposed ~~second object~~ by use of a projection exposure
apparatus as recited in claim 54.